

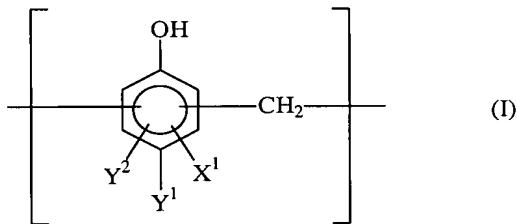
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

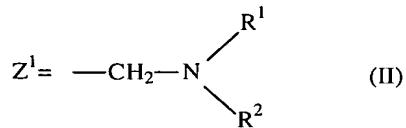
Claims 1-13 (Cancelled).

14. (Currently Amended) A metal-coating-film laminate system comprising:
a metal substrate;
a coating applied to the metal substrate; wherein
said coating has a thickness that is from 5 to 500 nm;
said coating has a content of carbon atoms that corresponds to from 5 to 500 mg/m² of the coating area;
said coating covers at least 90% of the surface of the metal; and
said coating comprises 0.01 g/L to 2 g/L of polymer molecules that comprise units conforming to general formula (I):



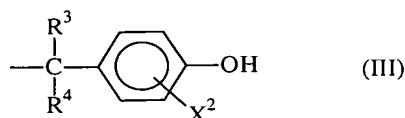
in which:

X¹ independently in each structural unit is a hydrogen atom or a moiety Z¹ conforming to general formula (II):

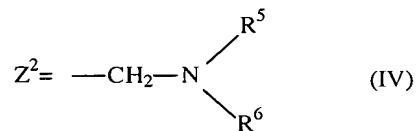


in which each of R¹ and R² independently is a hydrogen atom, a C₁ to C₁₀ monovalent alkyl moiety, or a C₁ to C₁₀ monovalent hydroxyalkyl moiety;

Y¹, independently for each unit, is a hydrogen atom, a hydroxyl group, a C₁ to C₅ alkyl moiety, a C₁ to C₅ hydroxyalkyl moiety, a C₆ to C₁₂ aryl, benzyl, or benzo moiety, or a moiety conforming to general formula (III):



in which, independently for each unit according to general formula (I) in which Y¹ conforms to general formula (III), each of R³ and R⁴ is independently a hydrogen atom, a C₁ to C₁₀ alkyl moiety, or a C₁ to C₁₀ hydroxyalkyl moiety, and X² is a hydrogen atom or a moiety Z² conforming to general formula (IV):



in which each of R⁵ and R⁶ is independently a hydrogen atom, a C₁ to C₁₀ alkyl moiety, or a C₁ to C₁₀ hydroxyalkyl moiety; and

Y², independently for each unit, is a hydrogen atom or, when Y¹ and Y² are bonded to adjacent carbon atoms in the aromatic ring shown in general formula (I), Y¹ and Y², and said adjacent carbon atoms to which Y¹ and Y² are bonded together may constitute a condensed benzene ring,

said polymer molecules that comprise structural units conforming to general formula (I) having a total number of Z¹ and Z² moieties and a distinct (but not necessarily unequal) total number of (i) units conforming to general formula (I) and (ii) Y¹ moieties that conform to general formula (III), such that the total number of Z¹ and Z² moieties has a ratio to the total number of units conforming to general formula (I) and Y¹ moieties that conform to general formula (III) that is from 0.2:1.0 to 1.0:1.0; and

a film applied to the coating.

15. (Currently Amended) A metal-coating-film laminate system according to claim [[19]]14, in which Y¹ in general formula (I) conforms to general formula (III).

16. (Currently Amended) A metal-coating-film laminate system according to claim [[19]]14, in which the coating comprises a total of at least 0.1 mg/m² of phosphorus atoms present in phosphoric acid-like compounds and silicon atoms present in organosilicon compounds.

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17. (Currently Amended) A metal-coating-film laminate system according to claim [[20]]15, in which the coating comprises a total of at least 0.1 mg/m² of phosphorus atoms present in phosphoric acid-like compounds and silicon atoms present in organosilicon compounds.

18. (Currently Amended) A metal-coating-film laminate system according to claim [[19]]14, wherein:

said coating has a thickness in a range from 50 to 300 nm; and
style="padding-left: 40px;">said coating has a content of carbon atoms that corresponds to from 50 to 200 mg/m² of the coating area.

19. (Currently Amended) A metal-coating-film laminate system according to claim [[19]]14 in which the coating system is applied to the metal substrate as a reactive coating.

20. (Currently Amended) A metal-coating-film laminate system according to claim [[19]]14 in which the coating system is applied to the metal substrate as a dry-in-place coating.

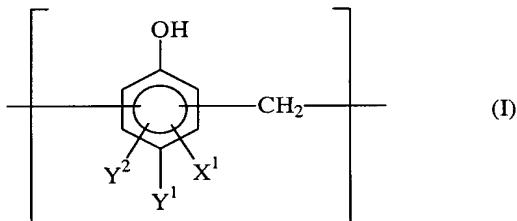
21. (Currently Amended) A metal-coating-film laminate system according to claim [[19]]14 in which the metal substrate is selected from the group consisting of iron, steel, and aluminum.

22. (Currently Amended) A method of use of a coating composition in a film laminating process, comprising the steps of:

(1) providing a surface of a metal substrate with the coating composition so that the metal substrate is suitable for laminating a film thereto, said method comprising the steps of:

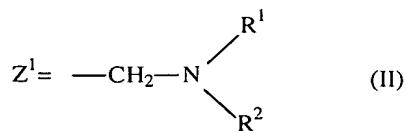
(I) preparing the coating composition by providing a waterborne composition that comprises water and:

(A) at least 0.01 g/L to 2 g/L of polymer molecules comprising units conforming to general formula (I):



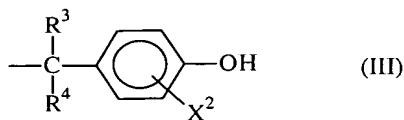
in which:

X¹, independently in each structural unit, is a hydrogen atom or a moiety Z¹ conforming to general formula (II):

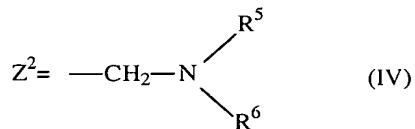


in which each of R¹ and R² independently is a hydrogen atom, a C₁ to C₁₀ monovalent alkyl moiety, or a C₁ to C₁₀ monovalent hydroxyalkyl moiety;

Y^1 , independently for each unit, is a hydrogen atom, a hydroxyl group, a C_1 to C_5 alkyl moiety, a C_1 to C_5 hydroxyalkyl moiety, a C_6 to C_{12} aryl, benzyl, or benzo moiety, or a moiety conforming to general formula (III):



in which, independently for each unit according to general formula (I) in which Y^1 conforms to general formula (III), each of R^3 and R^4 is independently a hydrogen atom, a C_1 to C_{10} alkyl moiety, or a C_1 to C_{10} hydroxyalkyl moiety, and X^2 is a hydrogen atom or a moiety Z^2 conforming to general formula (IV):



in which of R^5 and R^6 is independently a hydrogen atom, a C_1 to C_{10} alkyl moiety, or a C_1 to C_{10} hydroxyalkyl moiety; and

Y^2 , independently for each unit, is a hydrogen atom or, when Y^1 and Y^2 are bonded to adjacent carbon atoms in the aromatic ring shown in general formula (I), Y^1 and Y^2 , and said adjacent carbon atoms to which Y^1 and Y^2 are bonded together may constitute a condensed benzene ring,

said polymer molecules that comprise structural units conforming to general formula (I) having a total number of Z^1 and Z^2 moieties and a distinct (but not necessarily unequal) total number of (i) units conforming to general formula (I) and (ii) Y^1 moieties that conform to general formula (III), such that the total number of Z^1 and Z^2 moieties has a ratio to the total number of units conforming to general formula (I) and Y^1 moieties that conform to general formula (III) that is from 0.2:1.0 to 1.0:1.0;

and, optionally, at least one of the following components:

- (B) phosphoric acid-type compounds; and
- (C) organosilicon compounds,

said waterborne composition having a pH in a range from 2.5 to 6.5;

(II) contacting said surface of said metal substrate with the waterborne composition provided in step (I) for a sufficient time at a sufficient temperature to form a solid coating containing constituents of said waterborne composition, said solid coating adhering to said surface of said metal substrate and being itself covered, at least initially, by a coating of liquid;

(III) after step (II), drying the metal surface so as to remove from the metal surface the liquid constituents of the coating initially formed in step (II) or of a successor liquid coating formed by rinsing the surface of said metal substrate as modified after step (II) with water; and

(2) applying a film to the metal substrate coated with the composition provided according to step (1) to form a metal-coating-film laminate system whereby the method reduces industrial waste and minimizes gaseous emissions.

23. (Currently Amended) A method of use of a coating composition in a film laminating process according to claim [[27]]22, in which Y¹ in general formula (I) conforms to general formula (III).

24. (Currently Amended) A method of use of a coating composition in a film laminating process according to claim [[28]]23, in which the waterborne composition provided in step (I) comprises ~~a total of at least 0.01 g/l of phosphorus atoms present in phosphoric acid-like compounds and silicon atoms present in organosilicon compounds.~~

25. (Currently Amended) A method of use of a coating composition in a film laminating process according to claim [[28]]23, wherein ~~the waterborne composition provided in step (I) contains at least 0.1 g/l of polymer molecules comprising units conforming to~~

~~general formula (I)~~ and the coating of liquid formed in step (II) is rinsed with water so as to form a successor coating before completion of step (III).

26. (Cancelled)

27. (Currently Amended) A method of use of a coating composition in a film laminating process according to claim [[27]]22, in which the coating system is applied to the metal substrate as a reactive coating.

28. (Currently Amended) A method of use of a coating composition in a film laminating process according to claim [[27]]22, in which the coating system is applied to the metal substrate as a dry-in-place coating.

29. (Currently Amended) A method of use of a coating composition in a film laminating process according to claim [[27]]22, in which the metal substrate is selected from the group consisting of iron, steel, and aluminum.

30. (Currently Amended) A method of use of a coating composition in a film laminating process according to claim [[27]]22 wherein the film is selected from the group consisting of polyethylene, polycarbonate, polyester, and polymers of vinyl terephthalate.